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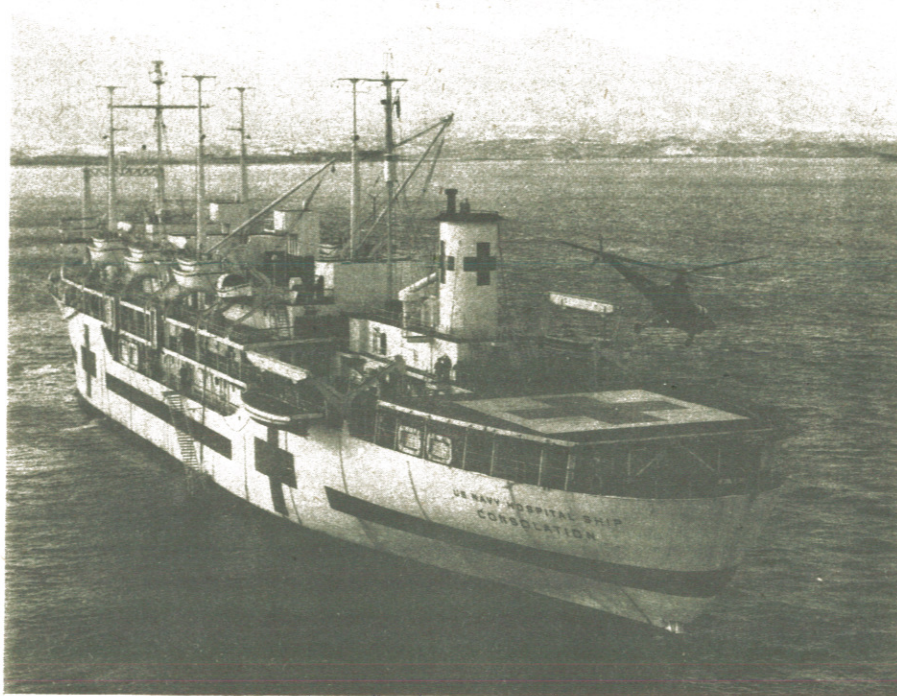
No. 6

TABLE OF CONTENTS

Patient Evacuation by Helicopter.....	2
High Altitude Hypoxia; Physiology and Pathology.....	3
The Artificial Kidney.....	5
Organic Phosphate Insecticides Toxic.....	8
Obscure Herniated Intervertebral Discs.....	9
Cleft Lip and Cleft Palate Management.....	11
Factors of Importance in Breast Milk.....	13
Sickle Cell Anemia and Pregnancy.....	15
Nontoxemic Hypertension of Pregnancy.....	17
Urogenital Tuberculosis: Surgical Review.....	19
Pulmonary Decortication in Tuberculosis.....	20
The Prophylaxis of Malaria and Amebiasis.....	21
Cardiac Involvement in Muscular Dystrophy.....	23
Antibody Response to Epidemic Typhus Vaccine.....	24
Navy Unit Commendation to Naval Hospital, Yokosuka.....	25
Graduate Training Course for Epidemiologists.....	26
Training Opportunities for MSC and HC Officers.....	26
CO's and Exec. O's, U. S. Naval Hospitals.....	28
Physiological Chemistry Manual.....	29
Recent Research Reports.....	29
From the Note Book.....	30

Circular Letters

Purchase Requisitions.....	32
Care of Remains.....	32
Performance Rating Plan; Improvement of.....	33
Physical Examination of Candidates for Naval Academy.....	33
Navy Savings Bond Program; Promotion of.....	37
CAA Certification; Naval and Marine Corps Personnel.....	37
Hospital Organization Charts and Personnel Listings.....	39



Official U. S. Navy photo released by Department of Defense

**Patients being evacuated to the USS CONSOLATION
by helicopter, Korean waters**

In Korea, the Navy's hospital ships are playing a major role in saving the wounded. In approximately 10 months, the USS CONSOLATION has handled 9,398 patients.

A hospital ship is faced with the problem of embarking patients in the shortest possible time. At sea, the fast breecher buoy system is used between ships. Some of the patients are evacuated to the hospital ship by a small boat shuttle system. The patients are hoisted aboard ship by means of an electric winch which drops a wire sling and lifts the patients from the boat. In bad weather this method is difficult, and stormy and rough seas make the operation hazardous.

To speed the evacuation of the wounded, the Navy installed a helicopter landing platform on the stern of the CONSOLATION. Such a flight deck makes it possible for a helicopter to pick up wounded men from the front lines and deposit them aboard the modern, floating hospital in a matter of minutes.

When the CONSOLATION anchored off Socko Ri, 12 miles north of the 38th parallel, almost within sight and sound of Communist guns, she was within helicopter range of the front lines. With Army, Navy, Air Force and Marine Corps teamwork, a smooth and efficient transportation system was set up. Battle casualties have been evacuated daily to the floating hospital via helicopter; total time from shore and treatment, less than 5 minutes. Wounded have been flown aboard the ship of mercy during winter storms when high seas have kept all small craft ashore. (PIO, Dept. of Defense)

High Altitude Hypoxia; Physiology and Pathology

Asphyxia from lowered oxygen tension is an important problem in aviation, especially in time of war. This hazard will become greater as the service ceilings of airplanes become higher. Before World War II planes rarely operated above the altitude of 20,000 feet. After the entry of the United States into World War II thousands of men were exposed daily to the hazards of lowered oxygen tension while on high altitude bomber or fighter missions. Operations at near 30,000 foot altitudes were commonplace. The partial oxygen pressure of the ambient air decreases with altitude. This means that, other things being equal, less oxygen reaches the lungs with each inspiration as one ascends. This results in lowered oxygen saturation of the blood. At ground level, under normal circumstances, the blood is 95 to 98 % saturated with oxygen. At ground level the dry air contains 21 % oxygen which represents a partial oxygen pressure of 160 mm. of mercury and partial oxygen pressure in the alveoli of 103 mm. of mercury, since in the alveoli allowance must be made for carbon dioxide tension and water vapor pressure tension in addition to the dead air space, as mentioned by Professor Root. (Medical News Letter, Vol. 19, No. 5)

The oxygen saturation of the blood drops off rather rapidly at the critical level, which approaches 85 %. This corresponds to an altitude of 11,000-13,000 feet. For this reason Air Force regulations require the use of supplemental oxygen on all flights above 10,000 feet. Without supplemental oxygen symptoms of cerebral hypoxia are manifest at approximately 14,000 feet. The symptoms, unfortunately, often are those of a sense of well-being or even euphoria. The pilot thinks he is doing all right, but in reality is doing very poorly. With the use of supplemental oxygen, dangerous hypoxia can be prevented up to an altitude of approximately 40,000 feet after which the lowered partial pressure of the blood oxygen results in cell death from oxygen starvation. The lowest alveolar oxygen pressure compatible with consciousness is 30 mm. of mercury and this corresponds to an altitude of approximately 25,000 feet. Therefore 30 of mercury for the oxygen, plus 30 of pressure for the carbon dioxide, plus 47 of oxygen for the water vapor pressure body temperature equals 107 of mercury, represented by an altitude of approximately 47,000 feet which is the lowest total alveolar pressure that we can tolerate while on 100 % oxygen.

Pressurization of cabins in aircraft has done a great deal to alleviate the problem of hypoxia and one is safe at almost any altitude so long as the pressure in the cabin is maintained. In combat, however, this often is impossible. The gradual asphyxia encountered at moderate altitudes differs in some respects from that observed from sudden loss of oxygen which occurs in strangulation, drowning, etc. In gradual hypoxia of altitude the lowered oxygen tension causes a stimulation of the crowded body and results in increase especially in depth, of respiration. This hyperpnea washes out carbon dioxide and nitrogen by way of the lungs and thus reduces the carbon dioxide concentration affecting the respiratory center of the brain and also decreases cerebral circulation by causing vasoconstriction of the cerebral vessels. Thus the normal stimulation of the center is progressively inhibited and cessation of respiration results from

oxygen starvation of the cells.

The accumulation of carbon dioxide which is present in other types of asphyxia is not a factor in paralyzing the respiratory center in asphyxia which occurs at moderate altitudes. However, beneficial results from a mild fall in the alveolar carbon dioxide pressure occur. First, more room is made for oxygen in the alveolar air and second, alkalosis develops from loss of carbon dioxide, thus allowing for an increased affinity of the hemoglobin for oxygen. If the partial pressure of carbon dioxide falls below 20 mm. of mercury, however, tetany convulsions and collapse occur.

We have no accurate record of the number of hypoxic deaths in the Air Force but there have been many. A number of such deaths occurred during World War II, particularly in combat missions. The autopsy findings of 75 such cases have been reported--most of them in the Eighth Air Force in B-17 and B-24 type aircraft. The hypoxic accidents in those 75 cases occurred between 17,000 and 31,500 feet. The pathological findings in these cases can be divided into three categories: (1) vascular changes characterized by engorgement of systemic veins and marked passive congestion, edema and hemorrhage into internal organs; (2) vacuolar changes in various internal organs especially in the liver and the heart. This finding will be a useful tool in forensic medicine in determining whether or not a death was caused by asphyxia. These vacuoles in the liver and the heart can be produced experimentally within 30 seconds if hypoxia threatens to be fatal. They contain neither glycogen nor fat but are believed to be water vacuoles and may or may not contain inclusion bodies. They resemble inclusion bodies in virus diseases, the nature of which is not known; (3) the changes in the central nervous system which are of two types: (a) an increased hypertrophy of the macrophages of the leptomeninges and extravasation of lymphocytes into the paravascular spaces and (b) the acute ganglion cell changes within the brain. These ganglion cell changes are most frequent and severe in the hippocampus gyrus of the cerebral cortex. Why that area is hardest hit, is not known. The most common type of change is acute cell shrinkage.

Resuscitation of flying personnel who have become unconscious through the lack of adequate oxygen pressure is an ever-present problem in aviation. If the state of unconsciousness has resulted from gradual hypoxia, the physiological state of the individual is quite different from that of one who has been suddenly asphyxiated. In those individuals who have been exposed to a gradual lowering of oxygen pressure the logical treatment would be the administration of a mixture of 5 to 10 % carbon dioxide and 90 to 95 % oxygen. This mixture should be administered with an intermittent positive pressure resuscitator at a peak pressure of 50 to 20 cm. of water pressure above the ambient pressure. The gas should be administered at a high inspiratory flow rate with a peak of 40 to 60 liters per minute, since venous return will be impaired by pressure breathing. The expiratory pressure should be kept as near ambient as possible. Special care must be taken to insure an open airway at all times during resuscitative effort. (COL R. B. Lewis (MC), USAF, in The Hazard of Asphyxia in National Defense: A Symposium, 12 June 1951)

The Artificial Kidney

In principle an artificial kidney is a differential dialyzer. Thirty-eight years ago a small one was first described by Abel, Rowntree and Turner. Subsequent attempts at "vividiffusion" were made by others, but technical difficulties lying between hemodialytic principle and widespread application were so forbidding that the whole matter remained quietly confined to academic circles until the work of W. J. Kolff of Holland was published in 1944. Since then artificial kidneys have multiplied in design and number, and their clinical status is becoming clear, even though unforeseen developments may change conditions at any time. At present they hold singular promise as experimental tools; but, if technique can be highly perfected, there is no discernible limit to the novelty, wealth and importance of hemodialytic explorations.

Fig. 1 shows one kind of modern artificial kidney. Its distinctive features - the use of the quasi-Archimedean screw to move blood through the cellophane dialyzing tubing, and the 100-liter bath - are derived from the original Kolff kidney, but it embodies extensive improvements over the latter, in consequence of the painstaking efforts of investigators at Peter Bent Brigham Hospital in Boston. These machines, properly used, are thoroughly reliable.

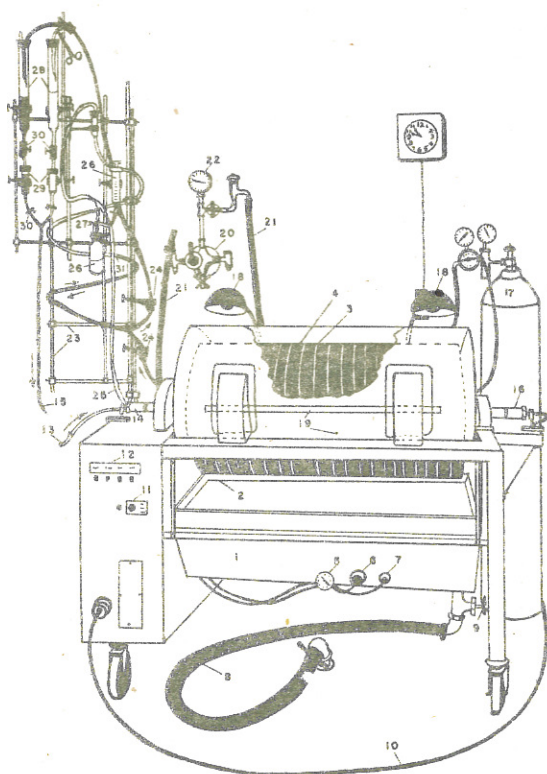


FIG. 1. Artificial kidney at Albany Hospital. 1, bath pan; 2, bath fluid level; 3, wire mesh drum; 4, cellophane tubing; 5, thermometer; 6, bath light socket; 7, thermoswitch set to maintain bath fluid at 100° F; 8, drain for bath; 9, drain faucet; 10, electric cable supplying lights, motor-hoist for bath, bath fluid heater, rotation drive for wire mesh drum, and pump for air piston; 11, UP-DOWN switch for bath; 12, HEATER, LIGHTS, and ROTATION-DRIVE switches; 13, arterial cannula; 14, arterial coupling; 15, venous cannula; 16, venous coupling (blood goes from here through the tube passing behind the machine to the lower of the pair of valves); 17, tank of 5% CO₂ and 95% O₂; 18, gooseneck lamp; 19, transparent plastic cover of bath and handle for raising; 20, mixing valve for providing water at body temperature to fill bath; 21, water hose; 22, thermometer of mixing valve; 23, supporting rods; 24, plastic valve; 25, rubber tube from air compressor (pump) in housing to blood flow control apparatus; 26, blood flow control apparatus; 27, petcock for adjusting rate of blood flow from venous coupling; 28, plastic air-trap buret; 29, clot catcher; 30, adjustable clamp; 31, interface of blood and air (piston), which oscillates up and down in the winding plastic tubing during pumping.

Two cannulas are placed by a surgeon, one in the radial artery and one in a vein on the inner aspect of the same arm at the elbow. A sterile cellophane "sausage casing" about 115 feet in length has previously been wrapped about the wire mesh drum in a closely coiled helix, and its ends adapted to terminal couplings ("arterial" and "venous"). These devices permit the drum and cellophane to be rotated by a motor without disturbing the tubes leading blood to the arterial and from the venous coupling. Banked blood, perhaps 400 ml., and some physiological saline are used to "fill" the machine initially, and heparin is administered through the venous cannula so that the patient's blood will not clot in its passage through the artificial kidney. Arterial pressure drives blood through the arterial coupling into the flattened cellophane tubing, where it sinks to the lowest portion of the loops during the rotation of the helix. This blood, the pressure of which is now negligible, is literally rolled to the venous coupling. From this point it is pumped through a pair of plastic valves by an air piston (minimizing the trauma to which the blood cells are subjected) and raised several feet above the bed level of the patient. It is led into a buret from which, by gravity, it drains through a protective clot-catching funnel containing glass beads, and then back to the patient's vein. One of the important responsibilities of the operating hemodialyst is to prevent the blood content of the patient from fluctuating widely during treatment, and he is attentive to the blood balance seeing that nearly equal quantities of blood are lost to and gained from the machine per unit time.

Just before the extracorporeal circulation is started, the bath, prepared with 100 liters of a solution containing major electrolytes of the plasma, is motorhoisted so as to immerse the lower portion of the dialyzing coils. All parts of the system in contact with blood are sterilized before operation, except for the bath fluid, since microorganisms do not, and viruses apparently do not, penetrate the cellophane. The concentrations in the bath fluid of electrolytes such as sodium, potassium, calcium, magnesium, bicarbonate and chloride approximate their concentrations in normal plasma, although for particular purposes fluid of any desired composition can be used. A mixture of 5 % carbon dioxide and 95 % oxygen is passed steadily through the space between the surface of the fluid and the plastic cover of the bath. The carbon dioxide, equilibrating with bath fluid, enables calcium to remain in solution with bicarbonate. Metabolites such as urea and creatinine are, of course, absent from the virgin bath. This permits a differential dialysis with, for example, little net change of sodium, while urea and creatinine move from blood to bath readily along their blood-bath concentration gradients. A 6-hour hemodialysis produces striking changes in the chemical composition of body fluids. An abnormally high blood level of urea, reflecting essentially an abnormally large quantity of urea dissolved throughout body water, may be reduced to one half or one third. Excesses of potassium, deficits in bicarbonate and, in general, almost any aberrations of electrolyte concentration in the plasma are sharply reduced.

There is some control of water balance, but this remains to be improved. Since there is no appreciable hydrostatic pressure gradient across the wall of the cellophane casing and no colloidal material in the bath fluid, the osmotic

pressure of the plasma colloids promotes a tendency for fluid from the bath to enter the blood. If unchecked, the resulting hydration could have serious clinical consequences, such as pulmonary edema. The movement of fluid into the blood is retarded or reversed by adding glucose to the bath. However, precise regulation of fluid exchange cannot be obtained in this manner, because glucose passes across the cellophane, changing the glucose gradient, and because osmosis under these conditions is a function of blood flow, which is changeable. Moreover, the protein content of plasma is variable. Ordinarily 0.7 % glucose in the bath fluid seems clinically satisfactory, but considerably higher concentrations have been used to dehydrate patients. If enough glucose is added to the bath, the fugacity, or escaping tendency, of the bath fluid becomes less than that of the plasma. The plasma consequently loses protein-free fluid to the bath, its oncotic pressure rises, and its fugacity with respect to interstitial accumulations of fluid is lowered. Thus, an osmotic siphon is started in which the plasma assumes the role of a conductor of fluid. Interstitial (edema) fluid moves "uphill" to the higher hydrostatic pressure of the blood stream, through the plasma fluid, and then "downhill" to the lower hydrostatic pressure of the bath fluid. In the experimental hemodialyzer of Alwall, water balance is controlled by regulating directly the hydrostatic pressure of the bath fluid relative to that of the blood. The ultrafiltration principle has been used in other forms also.

An interesting phenomenon results from the fact that, as dialysis proceeds, concentration gradients between blood and bath tend to decrease, diminishing the rate of transfer of certain solutes. In order to augment their exchange, the bath can be drained and refilled with fresh fluid one or more times during a run. It has been shown that maximal augmentation occurs if the time intervals between changes of bath fluid in a total dialytic operating time t are equal to $t/(n+1)$. If one optimal change is thus made at 3 hours in a total operating time of 6 hours, urea removal under specified conditions might be augmented 16 % above what would have occurred with no bath change. For the same conditions, but with two changes at 2 and 4 hours, the increment would be 20 %. Similarly, for an infinite number of changes the increment would be 31 %. This indicates how close to the dialyzing limit of the cellophane it is possible to work with only two changes. It points up further the limits of counterflow dialyzers, which approach in varying degree, but never equal, the efficiency obtained with "an infinite number of changes."

In renal disease excretory power is reduced, resulting in an accumulation of materials in the body which should have been eliminated in the urine. Urea, creatinine, uric acid, phenols, guanidine, acids and potassium are among these materials. Curiously, the regulatory function for other ions such as sodium is not strikingly impaired, and aberrant concentrations of this ion are less commonly seen. Uremia - nausea, vomiting, vertigo, coma and death - may accompany these retentions, but the substances responsible are not specifically known. Urea and creatinine, for example, are relatively nontoxic. Known or not, offending material is apparently removed from the body readily by hemodialysis, to judge from the prompt alleviation of symptoms following this treatment.

Chronic renal disease, progressing slowly toward a degree of dysfunction incompatible with life, cannot usually be helped except transiently by the artificial kidney. Yet the sense of well-being that may result improves the prospect of instituting proper medical management which, emphasizing a low protein diet to minimize the production of toxic metabolites, is often effectively palliative. (Science, 22 Feb. 1952, A. V. Wolf)

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New Organic Phosphate Insecticides Extremely Toxic

During the past few years, several entirely new types of insecticidal agents have come into widespread use. Among these are the synthetic organic phosphorous compounds which are quite different from the older materials like lead arsenate, nicotine and rotenone. They are very effective insecticides, and they are also far more toxic to humans, even in the dilute concentrations used.

Among the new products of the organic phosphate type are parathion, tetraethyl pyrophosphate (TEPP), and hexaethyl tetraphosphate (HETP). A number of illnesses resulting from the use of these materials have been reported - some fatal. The poisoning action of the organic phosphorus compounds is rapid and may prove fatal in from 1 1/2 to 4 hours.

Their toxic manifestations are similar. The mechanism of their poisonous action is that of a cholinesterase inhibitor. Absorption of excessive amounts of the materials through inhalation or ingestion, or even through the skin, may produce symptoms such as lacrimation, salivation, sweating, miosis and disturbance of vision, headache, and gastrointestinal and respiratory disturbances.

The following is the treatment recommended for poisoning from these materials. Usual methods for removal of the poison from the stomach and intestines are recommended. Atropine sulfate is a physiological antidote for the muscarinic effect of the organic phosphates. It should be given until complete atropinization of the patient has been attained. It has been suggested that a 1/60 gr. (1.0 mg.), or in some cases as much as 1/30 gr. (2.0 mg.), of atropine should be given at hourly intervals until the development of mydriasis and dry mouth and throat indicates that sufficient atropine has been given. Further use of atropine is not indicated and may result in severe atropine poisoning. Do not administer morphine. This drug appears to accentuate symptoms.

In addition to the above treatment, the patient should be placed in an oxygen tent at the first sign of pulmonary edema. Postural drainage and prolonged artificial respiration may be necessary. Following even mild symptoms, no additional exposure to organic phosphates should be allowed until cholinesterase regeneration has taken place.

Hexaethyl tetraphosphate is marketed under various trade names such as HETP., Bladan, Vapatone or Hexotine. Tetraethyl pyrophosphate may be sold under such trade names as TEPP, Agrifume, Bladex, Fosvex, Hexate, and others. Parathion may also be sold as Alkron, Durathion, Paradust, Planthion, Thiophos or Vapophos, as well as others.

These are a few of the trade names used to identify these newer insecticides, and new trade names no doubt will be added to this list as more companies engage in their production. It is important, therefore, to observe carefully the labels on insecticide containers for a complete listing of the various constituents.

If the necessary precautionary measures are observed, these newer insecticides may be used without injury to health, otherwise serious consequences may result. Since these compounds are so toxic to humans, even in very low concentrations, and act very rapidly, it is necessary that prompt treatment be instituted. (Director, Bureau of Indust. Hygiene, State of Connecticut, quoted in Occup. Health, March 1952)

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Obscure Herniated Intervertebral Discs

The recognition of herniated intervertebral discs as the cause of painful syndromes is a development of the past 20 years. It is well known that the herniation of an intervertebral disc in the lower lumbar region is the usual cause of sciatica; this phase of the problem is therefore not discussed. However, the symptoms which may be caused by herniated discs in the cervical region are not so familiar and as a result the syndromes produced are apt to be incorrectly diagnosed.

Herniation of intervertebral discs occurs as the result of injury, literally a tearing and compression of the disc which causes part of the disc to be extruded into the spinal canal, where it produces symptoms by pressing upon the nerve root or upon the spinal cord itself. Because these herniations result from injury it is to be expected that they would appear most commonly at the points of greatest mobility and greatest stress in the spine. The most mobile portions of the spine are the cervical and the lumbar. The thoracic portion is held relatively rigid by the thoracic cage and the sacral is, of course, a solid mass of bone. In the cervical and the lumbar regions the points of greatest stress occur where the mobile parts of the spine articulate with rigid portions; i.e., in the lower cervical and lower lumbar regions. As a result the most common sites for herniation of discs are between the 5th and 6th, and 6th and 7th cervical vertebrae, and between the 4th and 5th lumbar vertebrae and between the 5th lumbar and the sacrum.

In the cervical region are two quite different types of symptom complexes. The more well known and common arises as the result of a laterally lying disc which presses upon one of the cervical nerve roots; the other appears when a centrally placed herniation presses upon the spinal cord itself. Initially lateral herniations produce little more than a stiff, painful neck - a condition often referred to as a "crick" in the neck. This appears when the ligaments retaining the disc or the annulus of the disc are torn. The symptoms of this original tear usually soon subside. At a later date when because of some additional trauma a piece of the disc is forced out at the point of the tear, pressure upon one of the nerve roots will develop and the patient complains of pain radiating

into the shoulder, down the arm and into one or more of the fingers. This pain may appear relatively suddenly and be very acute. If the herniation is between the 5th and 6th cervical vertebrae, the 6th cervical root will be pressed upon and the pain will radiate downward and out into the thumb. If the herniation is at the next lower interspace, the 7th cervical root will be compressed and the pain will radiate into the index finger and sometimes into the middle finger. In addition to the pain in the digit the patients commonly state that the tip of the finger is also numb and feels peculiarly when touched. In addition to the pain in the upper extremity involvement of the 6th root usually produces some weakness of the biceps muscle and a reduction in the biceps reflex, while compression of the 7th root causes weakness and atrophy of the triceps muscle and loss of its reflex. Herniation of one of these discs also usually causes pain to radiate down the medial border of the scapula and often down into the pectoral region. Thus when one is confronted by a patient with severe pain of sudden onset which radiates into the left chest and down the left upper extremity it is natural to think first of the possibility that he is suffering from coronary disease. If, however, this pain is also associated with pain along the scapular border, numbness in one or two fingers, weakness of the biceps or the triceps and reduction or loss of its reflex, and if the pain is ameliorated by traction on the neck and aggravated by manipulation or movement of the neck, and if there are no clear cut evidences of recent cardiac disease then it is most likely that the patient has trouble with one of his intervertebral discs and not with his heart. There seems to be little doubt that there are a number of "cardiac cripples" whose invalidism is the result of such an error in diagnosis. This then is one of the most important obscure or undiscovered discs.

Midline herniation of intervertebral discs cause pressure directly upon the spinal cord but spare the spinal roots. As a result they cause little in the way of pain or radicular symptoms. Most of the symptoms produced by them are in the lower extremities. Because of the fact that the pressure is upon the anterior surface of the cord the symptoms are largely or entirely motor. This is because of a peculiar mechanical principle worked out by Dr. E. A. Kahn of Michigan. He showed that the dentate ligaments act like tent-ropes. When pressure is exerted anteriorly the ligaments become taut and transmit the pressure directly to the lateral crossed pyramidal pathways and to the spino-cerebellar pathways. These patients' greatest disability is in walking, due to the weakness, and spasticity of their legs and to their unsteadiness. Because of these manifestations and the lack of any striking alterations in sensibility these patients are often erroneously regarded as suffering from multiple sclerosis, primary lateral sclerosis or amyotrophic lateral sclerosis. As these are all degenerative diseases for which there is no known treatment, the patient is likely to be given a hopeless prognosis and sent on his way. This is unfortunate for two reasons. First his condition can, perhaps, be helped or corrected and if neglected, these disorders soon produce permanent changes in the spinal cord which are not relieved by removal of the offending disc.

X-ray examination of the cervical spine may be helpful in the diagnosis of lateral lying discs. Such herniations typically cause a loss of the normal

curvature of the cervical spine and cause it to become more or less straight, they cause a narrowing of the interspace at the proper level and after a period of time the growth of protective bony spurs or osteoarthritic proliferations on the margins of the two vertebrae which border the involved disc. It must be recognized, however that after herniation many discs later become asymptomatic although the roentgenographic changes will persist. Thus the changes that one sees in the x-ray picture may not be at the site of the disc that is causing the symptoms at that time. Midline herniations commonly cause little or no change in the roentgenogram of the cervical spine. Pantopaque myelography will usually demonstrate a herniated cervical intervertebral disc regardless of whether it lies laterally or in the midline. Examination of the spinal fluid is seldom of much help. There may be a moderate increase in the protein in the fluid, seldom above 100 mg. %, but this change is often lacking.

Treatment of these two types of cervical herniation is almost diametrically opposite. Because the midline discs soon produce irreversible changes in the spinal cord they should be operated upon and removed as soon as they are recognized. The symptoms of laterally placed herniations, on the other hand, can be relieved by conservative measures in most cases, perhaps in 85 %. Conservative treatment consists of traction on and immobilization of the neck. If this fails to relieve the symptoms, or if the symptoms are so severe or of such long duration that it seems likely that conservative measures will be inadequate then there should be no hesitancy about resorting to surgical treatment, as the results of such treatment are most gratifying. (Illinois M. J., Feb. 1952, P. C. Bucy)

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Modern Concept of Cleft Lip and Cleft Palate Management

In this paper, the question of cleft lip and cleft palate is discussed, not so much from the standpoint of technical details of treatment, but as a total rehabilitation problem, involving various fields of endeavor.

Frequency. In Pennsylvania, approximately 300 children are born each year with cleft lip or cleft palate, or both. In 1949, all births in Pennsylvania totalled 228,865. This means that one child in 762 is born with some type of this deformity.

A tabulation of congenital anomalies as recorded on birth certificates in Pennsylvania in 1949 places club foot at the head of the list with 437, cleft lip and palate second with 300, followed by spina bifida (182), polydactylism (fingers 150, toes 44), hypospadias (95), hydrocephalus (69) and congenital heart disease (59). Thus, cleft lip and cleft palate are among the commonest congenital anomalies. Of 300 born in Pennsylvania each year, from 20 to 25 die within a few months after birth still leaving a substantial number that require treatment.

Effects on the Individual. Cleft lip and cleft palate cause defective speech, irregularity and malocclusion of the teeth (which interfere with proper mastication of food), psychological maladjustment and a marked facial deformity. These constitute a serious physical and mental handicap, analogous to the handicaps of

poliomyelitis and cerebral palsy. However, the possibility of complete rehabilitation of cleft palate individuals is generally much greater than that of persons who have had poliomyelitis or cerebral palsy.

Unfortunately, the effective rehabilitation of persons with cleft palate and its associated handicaps is a long drawn-out and expensive process, frequently beyond the means of the average family. In the state of Pennsylvania, the Health Department has a division which is solely concerned with the problem of cleft lip and cleft palate. At the Lancaster Cleft Palate Clinic, Inc., a non-profit organization, there is the group cooperation of specialists in the fields of surgery, pediatrics, general dentistry, orthodontics, prosthetic dentistry, psychology and speech therapy. An otolaryngologist is also available when necessary. Many instances can be cited of people with an originally hopeless outlook on life being rehabilitated by proper surgical, dental and psychological treatment.

Cleft Lip and Cleft Palate Management. The child who is born with a cleft lip or cleft palate is not at first aware of the deformity. But the parents are keenly aware of it and their attitude toward the child and toward future treatment can frequently be very markedly influenced by an interview with them at this early time, even though actual treatment of the cleft is not immediately indicated. The entire problem should be explained to the parents with an outline of the treatment necessary over a period of perhaps several years, an optimistic view being emphasized. Parental cooperation is essential if the best results are to be obtained for the child. Later, when the patient is old enough to understand that he is different from other children, the same encouragement can be given directly. This psychological conditioning of both parents and child is a primary consideration in the successful outcome of the treatment.

In the newborn, the first treatment is concerned with closure of the cleft lip. However, cleft lip and cleft palate do not constitute a surgical emergency, and immediate closure of the cleft is not imperative to enable the baby to nurse. No operation should be done until the child begins to gain weight and is otherwise in good physical condition. Moreover, accurate coaptation of the cleft edges is more difficult when the parts are too small; much better end-results are obtained by waiting until the child is 6 weeks to 3 months old. In the meantime, by the use of a little ingenuity, feeding can be carried on by medicine dropper, spoon or special feeders. Swallowing is greatly facilitated by holding the baby during feeding in the upright position.

In cases of cleft palate combined with cleft lip, the author has done the rather simple vomer flap procedure suggested by Victor Veau in 1931 on the anterior part of the hard palate. This is the turnover of a flap of mucoperiosteum covering the vomer and inserting its edge beneath the mucoperiosteum of the opposite edge of the cleft. This procedure does not greatly prolong the operation, and by it in many cases practically the entire hard palate is closed. In addition, a frequent result is the prevention of a fistula beneath the lip into the nose. It is much easier to carry this out before the cleft in the lip is closed. Furthermore, the remaining cleft of the palate is often narrowed by this procedure, facilitating its later surgical closure, which otherwise might not be possible.

When the time approaches for something to be done about the major cleft of the palate, an examination by the whole group of specialists is indicated, and decision concerning the form of treatment best suited to the individual patient is made by the group as a whole. Recent publications have emphasized the dangers of certain operative procedures on the palate at too early an age in respect to interference with centers of bone growth, and consequent serious disturbances of development of the jaw bones and face. These studies indicate that less damage to jaw-bone development occurs if surgical repair of the cleft palate is postponed until at least 4 years of age. The argument is frequently advanced that if the palate cleft is not closed early, say at 6 months to a year of age, the child will acquire speech habits that are more difficult to eliminate later. Two or three years' delay in this respect is not thought to make sufficient difference to outweigh the greater likelihood of failure of operation, technical difficulty, interference with bone growth and higher operative mortality at the earlier age. Moreover, in a certain percentage of young children, temporary prosthetic speech appliances can be inserted to aid in development of good speech habits during the waiting period prior to operation.

The chief reason for closure of the cleft in the palate is to render good speech possible. Sometimes, an apparently good anatomical closure of the cleft can be accomplished surgically but good speech will not be possible because of inadequacy of the extent and muscular activity of the soft palate, in the prevention of too free passage of air up through the nose. Any surgical closure of the palate should have as its main objective, not the mere creation of a partition between the mouth and the nose, but the formation of a velopharyngeal sphincter, and if this cannot be accomplished by an operation then the validity of surgical treatment is debatable. Thus, when the child approaches the age for consideration of closure of the palatal cleft, a very careful examination should be made by the group in an effort to decide whether the best interests of the patient will be served by an operation or by a prosthetic speech aid. It is true that all surgeons who have had wide experience with these cases can show many examples of successful closure of palatal defects with excellent speech results. On the other hand, if they are honest in their reports, and follow up their cases carefully, they will show many poor results, both anatomically and from the standpoint of speech. It is in these latter cases that a proper pre-treatment evaluation might have avoided operative catastrophes, rendering later prosthetic treatment all the more difficult. It may be that revival of the pharyngeal flap procedure will provide the answer for some of these cases, unamenable to the more conventional surgical methods. (Plast. & Reconstruct. Surg., Feb. 1952, R. H. Ivy)

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Factors of Importance in Breast Milk

Breast milk has always been considered the natural food for babies. In recent years the warm, close communion between mother and baby in the nursing process has been stressed. In addition, much new and interesting information

has been published recently about the composition of human milk. It appears, therefore, that there is need at this time for a review of the constituents of breast milk which make it valuable as an ideal food for human babies.

Physicians in general feel that breast feeding is on the decline. This is no doubt a true impression. In England the incidence of early breast feeding has not changed since the prewar years, but mothers appear to be weaning their babies earlier.

Two-thirds of all hospitals in the United States were recently surveyed by Bain. She found that in 1946 and 1947 two-thirds of all babies in the nation were on breast or mixed feedings at the time of discharge from the hospital and one-third were on bottle feedings. The statistics varied markedly in different regions. In the Southeast and Southwest 82 % of babies were breast fed, while in the Northeast 61 % were bottle fed. More infants were breast fed in rural than in urban areas, and more in small and large hospitals than in medium-sized hospitals. The incidence of breast feeding was higher among babies who were discharged under 8 days of age than among those who were hospitalized longer. This suggests that a number of babies are weaned shortly after coming home from the hospital. No follow-up study was done to confirm this impression. Bain's survey may be compared with a study of mothers in 1916 at the Children's Hospital in Philadelphia. During a 15-year period 80 % of women breast fed their babies in the neonatal period and 42 % nursed 6 months or longer.

Colostrum. Human colostrum is the milk which is secreted during the last few months of pregnancy and the first 2 to 5 days after parturition. It is yellow in color and much thicker than established milk. It has a specific gravity of 1.050 to 1.060. Colostrum contains only one-half as much sugar and fat, 5 or 6 times as much protein and twice as much mineral salts as mature milk. It contains globulin, in contrast to later milk, and therefore coagulates on boiling. It is very rich in sodium and phosphorus. On microscopic examination, colostrum contains leukocytes, epithelial cells, fat globules and colostrum corpuscles. These are thought to be fat-laden neutrophils which remove the fat whenever milk stasis occurs. Colostrum appears to have some laxative action in the excretion of meconium stools. It has been considered important in the development of immunity in the infant. The existence of such a mechanism has not been conclusively established, but large numbers of antibodies are presumably present in the globulin fraction.

Breast Milk. Human breast milk is warm, fresh and free from pathogenic bacteria. It is bluish-white in color. It has a specific gravity of 1.030 and a caloric value of 20 calories per ounce. It is amphoteric or alkaline in reaction. Breast milk contains the essential food elements in the following average proportions: fat 4 %, protein 1.25 %, lactose 7 %, minerals 0.25 % and water 87.5 %. The fat content varies widely from 2 to 8 and even up to 10 %. The fat consists chiefly of the neutral fats, tripalmitin, tristearin, and triolein, with triolein making up about one-half. The protein content is fairly constant although it may vary from 1 to 1.5 %. It is made up of about 40 % casein and 60 % lactalbumin. The lactalbumin portion is more important. It is not better utilized as was previously thought, but it more nearly approaches the composition of the body proteins

and is richer in the essential amino acids. The sugar of breast milk, lactose, appears to be identical with that of other mammals. It is constant in amount and does not vary from 7 %. The mineral salts are small in amount but readily absorbed and utilized. The vitamins are usually present in adequate amounts if the mother's diet is adequate.

The composition of breast milk secreted by different women varies widely. It may be generally assumed that all constituents are present in normal amounts if the mother's diet is well balanced and her emotional and physical health good. Variations in quality occur, however, during a single nursing. The percentage of fat, and of protein to a lesser degree, tends to increase toward the end of a nursing period. Variations in quality also occur according to the "maturity" of the milk. The protein and mineral fractions gradually decrease as time after parturition elapses, and the sugar and fat portions gradually increase. During the period of change it is called "transition milk." Its composition becomes stable at about the end of the first month and from then on the "mature milk" shows little variation in composition.

Demand is the most important single factor that determines the amount of breast milk obtained from the average nursing mother. The quantity taken is directly proportional, within limits, to the weight of the infant and to his interest in food.

Drugs and Toxins. The question of drug excretion through breast milk has always been one of controversy. Many infants are weaned because there is fear of transmission of some drug which is being administered to the mother. Probably in most cases this is not justified. There seems to be a general feeling that lactating women should avoid alcohol and nicotine. Certainly in most cases this is not justified.

In the complete article, a review of the recent literature in regard to the composition of breast milk is presented. The chief constituents, minerals, vitamins, antibodies, and the breast cancer milk factor, are discussed, and the mammary transfer of various drugs and toxins reviewed. From this it appears that a number of drugs are to be avoided by nursing mothers. It would be well to limit phenobarbital administration to sedative 1/2 grain doses rather than hypnotic 1 1/2 grain doses. Bromides should be avoided. If a laxative is indicated, it would be advisable to select one other than cascara. The heavy metals, lead, mercury and arsenic, should be avoided by a nursing mother. (J. Pediat., Feb. 1952, T. B. Haddy & F. H. Adams)

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Sickle Cell Anemia and Pregnancy

Many cases of sickle cell anemia have been reported in the literature since the disease was first described by J. B. Herrick in 1910, and it has been noted that pregnancy infrequently occurs in women presenting this condition. The cause of disturbed fertility has not been definitely determined, but the factors of anemia, endocrine disturbance and the inherent disease may all be partly responsible.

Sickling of red blood cells occurs almost exclusively in Negroes. The presence of sickling does not denote a pathologic state. There are many healthy Negroes, estimated at about 8 % of the total Negro population in this country, whose red blood cells undergo sickling and who are said to have the sickle cell trait. Only about 0.2 % of those having the trait show evidence of sickle cell anemia.

This disease is hereditary and familial; it is characterized by excessive blood destruction (anemia, jaundice, occasional biliary calculi), active blood regeneration (nucleated red blood cells in peripheral smear, reticulocytosis, leukocytosis), joint and bone pains, leg ulcers, symptoms of anemia and acute attacks of pain.

This paper presents results of a study of 18 cases of sickle cell anemia, 4 of which were complicated by pregnancy.

Sickle cell anemia apparently does not affect the fertility index, so that conception takes place normally. The abortion rate varies between 10 and 20 % and premature labor is not uncommon. There is a greater incidence of toxemia and the number of stillbirths increases. Postpartum hemorrhage is not frequently observed. The maternal mortality rate is about 15 % and complications are common. Cardiac failure, intercurrent infections in the respiratory and urinary systems, thrombotic phenomena and shock are the outstanding lethal complications.

Treatment of this disease is concerned first with the preventive aspect. Because of the seriousness of this illness and its attendant high maternal mortality, the patient should be impressed with the hazards of child-bearing and warned of its consequences. Limitation of the number of offspring is imperative. Once conception has taken place, the question of early interruption of pregnancy must be evaluated in the light of the severity of the disease and the complications of each individual patient.

In any obstetric service handling a large number of Negro patients, a constant watch for cases of sickle cell anemia is mandatory. All patients should have routine blood counts and any suggestive anemia should be tested for sickling. If this is found to be present, further examination (evidence of blood destruction and regeneration) should be made in order to establish the diagnosis. If the disease is found to be present, frequent and close observation is essential. Any bizarre illness indicating fever, joint aches, extremity pain, jaundice or abdominal pains requires hospitalization of the patient.

In addition, excessive weight gain, hypertension, proteinuria and pyuria should be looked for. Antibiotics should be used freely in combating infections and prophylactic use of penicillin seems to be indicated in view of the increased incidence of infections. In the presence of anemia, repeated small blood transfusions administered slowly seem to be necessary. Frequently reactions to transfusions may be lessened by administration of sodium lactate. Because of the adverse effect of low oxygen tension on mother and baby, regional or local anesthesia is best employed along with oxygen administration. Digitalization should be employed at the first indication of congestive heart failure.

The literature describes the oldest patient having sickle cell anemia complicated by pregnancy as being 35 years of age and the second oldest 32 years. Two of the authors' 4 patients were 33 and 32 years of age. The 4 patients described represent a total of 17 pregnancies, an average of 4 pregnancies per mother. The literature reveals 106 pregnancies in 54 women, or an average of 2 pregnancies for each mother.

The third reported instance of sickle cell anemia in both mother and child occurred in this series. It is possible that further investigation will reveal a greater incidence of sickle cell anemia in children born of such mothers. (Postgrad. Med., Feb. 1952, R. Charet, R. Waltman & H. Fernbach)

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The Renal Factor in Nontoxemic Hypertensive States of Pregnancy

Nontoxemic hypertensive states occurring during pregnancy, labor, delivery and the puerperium are not all due to toxemia of pregnancy. Some of these conditions are not even related to pregnancy, and their occurrence at that time is purely coincidental.

Hypertensive states that are nontoxemic in origin are most important because of the close relation between obstetrics and urology. The physiologic and anatomic relations between the reproductive organs and those of the urinary tract make it doubtful that disease of one group can fail to have a harmful effect upon the other. Thus, in obstetrics, deviations from the normal anatomic or physiologic nature of the urinary tract may have a decided effect upon the outcome of an otherwise normal pregnancy. It is very important that differentiation be made between toxemic and nontoxemic hypertension in pregnancy.

In this discussion nephritic toxemia will not be considered.

Hypertension that decreases promptly with bed rest and increases with resumption of activity, in patients who do not present definite changes in the eye-grounds, who have normal or near-normal carbon dioxide tension values, who are without albuminuria or have only mild albuminuria and who have normal serum uric acid values, should be considered as belonging in the nontoxemic hypertensive group. For these patients thorough investigation of the urinary tract is definitely indicated.

In many conditions whose origin is in the urinary tract there may be no local symptoms. The only objective symptom may be hypertension. Primary or essential hypertension occurs in approximately 5 % of the adult population of the United States. It is aggravated by pregnancy, but since its course, unless surgically managed, is rapidly and destructively downhill, it is impossible to say whether pregnancy has permanent and harmful effect. The outlook for the fetus is nearly as bad as that for the untreated mother, the fetal mortality being over 65 %.

Deviations from normal in the urinary tract which are responsible for the development of hypertension may fall into several groups.

The first and perhaps the most uncommon group of lesions comprises cysts of the kidney. These are usually unilateral and acquired. They may be either single or multiple. Surgical management is usually indicated and, when employed, usually results in a rather rapid lowering of the blood pressure to normal limits.

The second group consists of congenital polycystic kidney disease. Hypertension in this group is dependent upon the amount of kidney destruction and occurs in 40 to 75 % of patients with this condition. Polycystic kidneys are usually bilateral.

The third group consists of hypertensive states due to obstructions of the urinary tract. These may be ureteral strictures, twists, kinks or dilatations, either congenital or acquired. In 1930 Maher and Wosika found hypertensive cardiac disease to occur in approximately 17 % of patients with urologic lesions, but in only slightly over 4 % was the condition due to parenchymal renal disease.

The fourth group is composed of hydronephrosis and/or pyelonephritis. Since pyelonephritis usually develops in patients with hydronephrosis in pregnancy, these conditions will be considered infectious processes. They occur more frequently than do any other complications of pregnancy, with the possible exception of nausea and vomiting, and are responsible for a high fetal loss. They may be unilateral. Normal ureteral dilatation of pregnancy, which produces stasis or some type of obstruction or ureteral dysfunction, is usually causative.

Within a few weeks after delivery at term or earlier termination of pregnancy, any patient who has shown any type of renal infection should have another complete urologic examination to determine the degree of impairment of renal function and the extent of anatomic damage. The causative factor should then be corrected, so that this serious complication may be avoided in future pregnancies. The importance of diagnosis and management of these conditions may be emphasized by the observations of Crabtree and Reed, who noted hypertensive conditions in 6 of 45 patients 5 to 10 years post partum.

The fifth group is made up of possible pheochromocytomas. These tumors are usually single and unilateral, and they are usually located in the adrenal gland, although extramedullary pheochromocytomas may occur at any place in the chromaffin chain. The patient usually has moderately elevated blood pressure, with acute exacerbations of extreme hypertension associated with precordial and epigastric pain, flushing of the face, headache, perspiration and blanching of the extremities. Diagnosis may be made by the histamine test, with the characteristic rise in blood pressure, or by the benzodioxan test, with the associated fall in blood pressure. If the tumor is medullary, retrograde pyelographic study is an invaluable diagnostic procedure. The treatment of these tumors is surgical.

The sixth and final group comprises Goldblatt's hypertension or renal ischemia. This condition is frequently overlooked or classed as toxemic hypertension of pregnancy. Its symptoms also simulate those of pheochromocytoma. There occur paroxysmal hypertension with epigastric and substernal pain and the feeling of impending disaster, headache, vertigo and occasional nausea and vomiting. This condition usually occurs in the last trimester of pregnancy or in

the puerperal period. Tachycardia, with profuse perspiration and elevated blood sugar values, is frequent. Hypertension and mild albuminuria are the only constant symptoms. If these conditions occur in the later stages of pregnancy, postpartum hemorrhage is frequent. This may be either immediate or delayed or both. Uterine tone and general involution are almost normal, but owing to the greatly increased arterial pressure there is local subinvolution of the placental site with constant loss of blood. In spite of transfusions, near exsanguination may occur and malignant hypertension may follow. Even when the patient is practically exsanguinated, arterial hypertension persists. The hypertension is not constant, and, like that due to pheochromocytoma, is affected by emotion, activity and fatigue. Goldblatt showed that renal ischemia may be directly responsible for the development of experimental hypertension, and that if the clamp on the main renal vessel is removed, blood pressure in the experimental animal returns gradually to normal.

One of the most frequent causes of the so-called Goldblatt hypertension in pregnancy or the puerperal state is pyelitis in early childhood, with resultant distortion of the renal pelvis or the ureter due to the formation of adhesions. Any patient with a history of childhood pyelonephritis should have the benefit of thorough urologic examination as early as possible in pregnancy, as she is potentially hypertensive. Abnormalities in the urinary tract should be diagnosed and treated early in pregnancy to avoid serious hazard to the future health and life of the patient.

The diagnosis of Goldblatt's hypertension is made by pyelographic procedures, either excretory or retrograde, the latter being preferable. The treatment of choice is indicated by the condition observed on urographic examination.

The author stresses the importance of obtaining a complete urologic history of every pregnant patient. Those with a history of previous trouble of any kind should be seen by a competent urologist, and any malfunction or abnormality should be given proper treatment. (J. Internat. Coll. Surgeons, Jan. 1952, W. M. Silbernagel)

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Urogenital Tuberculosis: A Review of 209 Surgically Treated Cases

Urogenital tuberculosis as an entity in a hospital solely devoted to the treatment of tuberculosis presents a problem entirely different from that in a general hospital or in private practice. This is so because in most instances in a tuberculosis institution urogenital tuberculosis is secondary to and develops while the patient is under treatment for another form of tuberculosis (chronic pulmonary and skeletal tuberculosis).

The problem of the treatment in multiple system tuberculosis is often a complicated one, since in a number of cases there is an active tuberculosis of three organs, all requiring active treatment.

During an 18-year period (1931-1948), 209 patients with urogenital tuberculosis were subjected to either nephrectomy or epididymectomy, or both. Cases

in which the operation was done at another hospital and admitted to the authors' service for treatment of the draining sinus which followed the procedure are included. A nephrectomy was done in 63 instances, an epididymectomy (unilateral or bilateral) in 105 cases and in 41 patients an epididymectomy and nephrectomy were performed.

Chronic pulmonary tuberculosis was also present in 50 % of the nephrectomy and 70.6 % of the epididymectomy patients; associated bone tuberculosis occurred in 23.1 % of the patients with renal tuberculosis and in 24.6 % of those with genital tuberculosis.

Postoperative sinuses developed in 38.4 % of the nephrectomy series and 22.6 % of the epididymectomy series.

There are 49.9 % known deaths in this series. The chief cause of death in both the nephrectomy and epididymectomy patients is chronic pulmonary tuberculosis. Uremia is a more frequent cause of death following nephrectomy, while tuberculous meningitis is a more frequent occurrence after epididymectomy. (J. Urol., Feb. 1952, A. J. Greenberger & M. E. Greenberger)

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Pulmonary Decortication in Tuberculosis

Pulmonary decortication involves peeling from the surface of the pleura abnormal fibrinous layers which have formed over it and which prevent the lung from re-expanding. It is therefore indicated in the following instances:

1. Unexpandable lung following artificial pneumothorax therapy in order to obliterate the space, to increase vital capacity in order to permit surgery for the other lung or to replace displaced mediastinum in the presence of symptoms.

2. As an adjunct to pulmonary resection. Removal of a lobe or lung is made much easier in cases in which there is marked symphysis if the plane between visceral pleura and the encasing peel is first found and decortication performed. Also, in cases of lobectomy, if rapid obliteration of the pleural space is to be obtained, as well as maximum function of the remaining lung, decortication of this lobe or lobes must be carried out before the chest is closed.

3. Tuberculous empyema.

Alternatives to Decortications. In the past, when decortication was not being used in the treatment of these cases, the following measures were carried out:

- (1) Continuous aspiration, (2) thoracostomy, (3) thoracoplasty, (4) operations of the Schede type.

Contraindications to Decortication. It is felt that a definite contraindication to the performance of this procedure is the presence of an open focus in the underlying lung. In these cases, if it is considered that thoracoplasty will not collapse the cavity, a combined decortication and lobectomy is done. Some surgeons feel that decortication should not be carried out in pulmonary tuberculosis for fear of reactivating an apparently quiescent focus in the underlying lobe or lung. In the limited experience of this study, reactivation of the disease in the underlying

lung did not occur. It is possible that this is, in a great part, due to the pre- and post-operative use of streptomycin.

This a report of results with pulmonary decortication in the treatment of 21 cases of various pleural complications of pulmonary tuberculosis and one of unexpandable lung in pulmonary sarcoma with no infection. The operation was done on 7 patients in the course of pulmonary resection, and in 14 cases of tuberculous empyema.

Results were good in 11 of the 14 empyema cases, that is, there was complete obliteration of the pleural space; 1 was classified as a fair result, that is, the space, while becoming smaller, did not completely obliterate; and 2 are classified as poor in that there was no decrease in the size of the empyema cavity without the assistance of further surgery.

In spite of their limited experience, the authors are very much impressed with the results of pulmonary decortication, especially in the treatment of tuberculous empyema. It would appear that in these cases a decortication properly and completely done will be almost 100 % effective in effecting a cure. It is their impression that the success of the operation will be in direct ratio to the completeness of the decortication, particularly with respect to the removal of the peel from the diaphragm. It is also very important, as far as possible, to free the interlobar fissures. While every attempt is made to treat the lung with respect, it is almost impossible to avoid a small amount of air leakage. When continuous suction is used, however, this does not appear to affect the outcome and the lung usually re-expands promptly.

The so-called unexpandable lung without empyema would seem particularly suited to this operation, as in these cases the peel is usually thin and very loosely attached and there is no infection present. In regard to resection, the availability of the decortication procedure renders unnecessary the performance of thoracoplasty or other collapse procedure to obliterate a space that could not otherwise be filled by the remaining peel-covered lobe or lobes. Pneumonectomies that were once thought impossible are now greatly simplified by the finding of the cleavage plane between the visceral peel and the visceral pleura. It is considered that pulmonary decortication is the most valuable procedure available for the treatment of the aforementioned complications. (J. Thorac. Surg., Feb. 1952, J. J. Quinlan, V. D. Schaffner & J. E. Hiltz)

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The Prophylaxis of Malaria and Amebiasis with Milibis-Aralen

The importance of malaria and amebiasis to North Americans is twofold: (1) they both occur in the United States (malaria now infrequently, but amebiasis in 5-10 % of the population), and (2) they both occur with greater frequency in locations to which American troops may be sent in the future. Thus there is good reason to continue the search for more effective antimalarial and amebicidal drugs, both for the treatment of the clinical case and for mass prophylaxis.

Foremost of the available antimalarial drugs are two very effective 4-amino-quinoline compounds, chloroquine (Aralen) and Camoquin. And currently

foremost among amebicidal drugs are the antibiotics aureomycin, bacracin and terramycin, and the bismuth glycolylarsanilate called Milibis. It has seemed desirable, for long term prophylactic use, to combine an antimalarial substance and an amebicidal drug in a single tablet. Such a combination of Aralen and Milibis has been prepared and its use is the subject of this paper.

Aralen has the formula (4-diethylamino-1-methylbutylamino) quinoline. For oral use it is given in the form of the diphosphate, a white crystalline powder readily soluble in water at an acid pH level. Effectual treatment of either falciparum or vivax malaria is accomplished with only 2.0 Gm. (8 tablets) or less, in a 24 hour period; and effective prophylaxis is maintained with approximately 500 mg. (2 tablets) weekly. Its incidence of side reactions is low and includes transient mild headache, mild nausea, occasional pruritus and disturbance of visual accommodation.

The remarkably beneficial effect of Aralen on extraintestinal amebiasis is also to be emphasized, particularly since the current concept of amebiasis is that systemic involvement occurs fairly early in many persons with intestinal infections. Many clinicians have substituted Aralen for emetine in the treatment of extraintestinal amebiasis. The regimen recommended by Conan is generally followed. This consists of a priming dose of 1.0 Gm. daily for 2 days, followed by 0.5 Gm. daily for 2 to 3 weeks.

Milibis is bismuthoxy-para-N-glycolylarsanilate, a bismuth derivative of p-N-glycolylarsanilic acid. It contains 15.01 % of arsenic and 41.88 % of bismuth. Effective in vivo animal amebicidal activity has been demonstrated. Berberian treated 72 cases of amebiasis with varying dosages of Milibis with good results, and showed at the same time that there was no significant improvement in the relapse rate when either chiniofon or bismuth subgallate was combined with Milibis. During the initial period of clinical investigation, Milibis was used in 1,186 cases of amebiasis with good results; in one study, a total of 381 (82.6 %) of 461 cases followed after therapy, were parasitologically "cured" with Milibis alone, after 1 to 4 courses of the drug. As a result of these and other studies, the recommended average adult dose of Milibis in intestinal amebiasis is 0.5 Gm. 3 times a day for 7 days. A satisfactory dosage schedule for the prophylaxis of amebiasis is not known.

The Milibis-Aralen tablets which were used in this study of mass prophylaxis each contain 250 mg. of Milibis and 75 mg. of Aralen.

The results of the Milibis-Aralen treatment are shown by the comparison of initial and final stool surveys in Table II and by a consideration of clinical cases of malaria and amebiasis occurring between the two surveys.

Table II is self-explanatory; the fall in the incidence of positive stools among the treated group is striking. The inclusion of separate figures for the cysts and trophozoites of *E. histolytica* in Table II and in the text has been done for the completeness of the record and to indicate to some degree the severity of the disease process, inasmuch as trophozoite forms are passed only when diarrhea is marked or dysentery occurs. It should be emphasized that there is no intent to speak of the treatment of cysts, as over against the treatment of

trophozoites. One does not treat cysts. Trophozoite forms are solely responsible for pathogenesis in amebiasis; cystic forms cause no pathogenesis. It is because cystic forms develop from the trophozoites that their presence or absence is used as an index of success or failure of the therapeutic procedure aimed at the trophozoite. This fact needs repetition because it seems to be frequently misunderstood.

TABLE II. RESULTS OF INITIAL AND FINAL STOOL SURVEYS AMONG THE GROUP TREATED WITH MILIBIS-ARALEN AND AMONG THE CONTROL GROUP

	GROUP I (TREATED)	GROUP II (CONTROL)
<i>Number of Individuals</i>	201	209
Per cent of positive stools before study	35.8	33.9
a. Cysts only	28.8	25.3
b. Trophozoites only	3.0	1.9
c. Cysts and trophozoites	4.0	6.7
<i>Number of Individuals Included in Second Survey</i>	188*	190†
<i>12 Weeks Later</i>		
Per cent of positive stools in second survey	3.4	28.9
a. Cysts only	3.4	23.7
b. Trophozoites only	-	2.1
c. Cysts and trophozoites	-	3.1

*Of the thirteen individuals from the treated group who did not have a stool examination in the second survey, five, or 38.5 per cent, had had positive stools in the initial examination. The percentage, therefore, was approximately the same as that for the entire group and the loss of these thirteen cases does not alter the results.

†Of the nineteen individuals from the untreated group who did not have a stool examination in the second survey, eight, or 42.1 per cent, had had positive stools in the initial examination. The percentage is, therefore, a little higher than that for the entire group, but not so much that it significantly alters the results.

During the 12-week period there were no cases of clinical amebiasis or clinical malaria in the treated group. However, from the nontreated group during the same time period, there were 12 hospital admissions for symptomatic intestinal amebiasis, 1 for hepatic amebiasis, 8 for falciparum malaria and 7 for vivax malaria.

Side effects from the Milibis-Aralen tablets were almost negligible. In only 2 instances were there complaints during the course of therapy.

Thus, tablets containing Milibis and Aralen acted as an efficient prophylactic agent against both amebiasis and malaria when administered in small doses on two consecutive days each week. In areas where the two diseases are endemic, this drug combination will prove to be a valuable compound. (J. Lab. & Clin. Med., Feb. 1952, M. T. Hoekenga, Honduras)

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Cardiac Involvement in Progressive Muscular Dystrophy

The authors' interest in the subject of heart disease among dystrophic patients was aroused by the admission of a 13-year-old boy with pseudohypertrophic progressive muscular dystrophy. In this patient no evidence of heart disease was found clinically, but an unusual electrocardiogram was recorded. Since the usual stigmas of congenital or rheumatic heart disease were absent, it was postulated that dystrophic changes might have occurred in this patient's cardiac musculature similar to those found in skeletal muscle. In order to verify this impression, all the relevant clinical and necropsy material available to the authors in

their hospital was reviewed. The clinical cardiac findings as well as the available histological reports form the basis of this report.

Forty-four patients with muscular dystrophy are described in the complete report. In general, no relationship between the duration and severity of the skeletal muscular lesions and those of the heart was noted.

The necropsy data from 1 of the 6 patients on whom histological data were available are described in detail. The similarity of cardiac and skeletal muscle lesions was considered noteworthy in all of the cases.

Variations in the electrocardiogram suggestive of abnormality were frequent. Tachycardia, abnormalities of the P waves, and tall R waves in V_1 and V_2 occurred frequently. Although no specific pattern was indicative of dystrophic involvement of the heart, patients with progressive muscular dystrophy on whom unusual electrocardiograms have been obtained should be suspected of having dystrophic heart disease.

In patients on whom the diagnosis of progressive muscular dystrophy (pseudohypertrophic or otherwise) has been made, the etiological diagnosis of "possible dystrophic heart disease" must always be considered. By "dystrophic heart disease" it is inferred that the heart has been pathologically involved by a histological process pathognomonic of the skeletal muscular disease. (Am. Heart J., Feb. 1952, Shirley Weisenfeld & W. J. Messinger)

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Antibody Response of Human Subjects to Epidemic Typhus Vaccine Three to Eight Years After Previous Immunization

Several million Americans have received 2 or more injections of Cox-type epidemic typhus vaccine during the past 9 years. Today, many of these previously immunized individuals are being sent overseas again. The question now arises whether these previously immunized individuals should receive the usual primary course of 2 injections of typhus vaccine or whether a single booster dose will suffice to recall and raise their typhus antibodies to the maximum obtainable level. Data bearing upon this problem are presented in the original article. On the basis of these data the following conclusions are drawn:

A single injection of 1.0 ml. of epidemic typhus vaccine gives rise to a maximum complement-fixing antibody response in individuals immunized against epidemic typhus as long as 5 or 6 years previously.

A second booster injection spaced either one week or 7 weeks following the first booster does not, in previously immunized individuals, result in a better antibody response than a single booster injection.

In individuals receiving primary course injections of epidemic typhus vaccine, the evidence obtained in this limited study suggests that higher complement-fixing antibody titers will be obtained at a given interval after inoculation was begun if the interval between injections is 2 to 4 weeks rather than 7 to 10 days. (J. Immun., Feb. 1952, E. S. Murray, A. Ofstrock & J. C. Snyder)

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The Secretary of the Navy has awarded the

NAVY UNIT COMMENDATION
to the
NAVAL HOSPITAL, YOKOSUKA, JAPAN

for extremely meritorious service in the treatment of war casualties and other patients during the period 5 December 1950 to 15 January 1951.

The citation accompanying the award reads:

"For extremely meritorious service in the treatment and hospitalization of 5,804 war casualties and other patients from 5 December 1950, to 15 January 1951. Although still in the process of expanding from a 100-bed dispensary to a 800-bed hospital, the United States Naval Hospital, Yokosuka, Japan, admitted and treated 4,312 casualties during the 10-day period from 5 to 15 December, 2,022 of whom were received during the peak period of 6-7 December 1950. Interested solely in saving lives and bringing physical comfort to the increasing stream of wounded, the staff exerted maximum effort in preparing additional space for the proper care of its patients. With the already inadequate facilities tremendously overtaxed, the limited number of personnel worked long, arduous hours, sacrificing much-needed rest to provide medical treatment and other essential services to this overwhelming patient overload caused almost wholly by the influx of United States Marine Corps members who had been wounded when suddenly trapped by aggressor forces in the Chosin Reservoir area. By its resourcefulness, zeal and initiative in the face of many complex adversities, this gallant organization saved the lives of numerous casualties, thereby upholding the highest traditions of the United States Naval Service."

All personnel attached to and serving with the Naval Hospital, Yokosuka, Japan from 5 December 1950 to 15 January 1951, are hereby authorized to wear the NAVY UNIT COMMENDATION Ribbon. The Bureau of Naval Personnel will issue individual authorization to all eligible personnel without further action on their part. (PIO, BuMed)

* * * * *

Graduate Training Course for Epidemiologists

Applications are desired for a 6-months course in epidemiology for Naval medical officers beginning 5 June 1952 at the U. S. Naval Medical School, Bethesda, Maryland.

The course will cover the important communicable and epidemic diseases which may confront the Navy in any part of the world, with emphasis upon the special laboratory technics, the epidemiology of diseases affecting masses of people, control measures, enough statistics to determine significant factors in epidemic spread of disease and a groundwork of defense against biological warfare; and will provide limited field experience under supervision. A large staff of nationally known specialists will conduct intensive classroom and laboratory instruction in bacteriology, parasitology and virology technics.

Completion of the course will give the individual student a good groundwork in one of the key subspecialties of preventive medicine, a field which offers an unusually interesting career in the Navy, including further training and eventual Board certification. It has an especial appeal for those who see the possibilities in the reduction of disease by methods applied to environments or masses of people. Initiative and ability to work independently under all sorts of conditions are important qualifications for a worker in this field.

Medical officers of the Regular Navy, and Reserve medical officers who have applied for transfer to the Regular Navy, in the ranks of Lieutenant Commander and below, are eligible to apply for the course. While the enrollment is limited, a very few specially qualified Medical Service Corps officers may be admitted if their previous training indicates their ability to carry the course of study. Assignment to the course will constitute a permanent change of duty, permitting transportation of dependents and household effects. Applications may be made by dispatch or letter to the Chief, Bureau of Medicine and Surgery (Attention: Code 31). (Professional Div., BuMed)

* * * * *

Training Opportunities for MSC and HC Officers

Courses of instruction currently available to Medical Service Corps and Hospital Corps officers serving on active duty are listed below. Class quotas are limited and it is recommended that interested officers submit requests well in advance of the beginning dates of the courses. Requests for the courses should be submitted in letter form, via official channels, to the Chief, Bureau of Medicine and Surgery (Attention: Code 345)

Officer's Course - Naval School of Hospital Administration, Bethesda, Md.

A 10-month course beginning in September each year. Intensive classroom and laboratory instruction in all phases of Medical Department administration, with emphasis on naval hospital personnel administration, finance and accounting, and food service management. Courses are also given in business English,

effective speaking, military justice and in many other fields of interest to the administrative officer.

Food Service Management - Cornell University, Ithaca, N. Y. Two academic years of instruction in undergraduate subjects in the School of Hotel Administration with emphasis on the management and operation of an institutional food service department. Classes convene in February and September of each year. Officers completing the course may anticipate assignment to duty as head of the Food Service Division of one of the larger naval hospitals.

Sanitary Science - University of California, Berkeley, Calif. A 5-month course beginning in February and September each year. Undergraduate work in environmental sanitation, public health statistics, rodent control, venereal disease control, epidemiology and other phases of the Public Health field. The course includes a 1-month period of actual field work in the San Francisco area, under the direction of members of the University faculty.

Hospital Administration - Brooke Army Medical Center, Fort Sam Houston, Texas. A 10-month course beginning in September each year and covering all phases of hospital administration from the standpoint of the Army Medical Administrator. The course is of special interest and value to MSC and HC officers who may be assigned to duties with Navy units in Army medical installations.

Advanced Food Service - Army Quartermaster School, Fort Lee, Va. A 28-week course beginning in March and September each year. Course includes nutrition and menu planning; sanitation and salvage; methods of cooking, baking, and meat cutting; and actual operation of a 1,000 man mess. Graduates of the course may anticipate assignment to duty as the head of the Food Service Division of one of the smaller naval hospitals, or as assistant to the Head of the Food Service Division in one of the larger hospitals.

Laundry Management - Army Quartermaster School, Fort Lee, Va. An 8-week course designed to train officers in the operation of static and mobile laundry equipment and static dry cleaning equipment. Classes convene every 2 months.

Procurement - Army Quartermaster School, Fort Lee, Va. An 8-week course in Armed Forces procurement methods and procedures for supplies, equipment and services. Of special value and interest to MSC and HC officers assigned to duties in the finance or supply fields. Classes convene 4 times a year. (Professional Div., BuMed)

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Commanding and Executive Officers, U. S. Naval Hospitals
and National Naval Medical Center

NavHosp, Portsmouth, N. H.....	CAPT W. E. Pinner (MC) USN, CO
	CAPT C. E. Bentel (MC) USN, Exec. O
NavHosp, Newport, R. I.....	CAPT F. R. Moore (MC) USN, CO
	CAPT R. J. Vaughn (MC) USN, Exec. O
NavHosp, Chelsea, Mass.....	CAPT L. R. Newhouser (MC) USN, CO
	CAPT E. S. Lowe (MC) USN, Exec. O
NavHosp, St. Albans, N. Y.....	CAPT A. T. Walker (MC) USN, CO
	CAPT C. W. Stelle (MC) USN, Exec. O
NavHosp, Philadelphia, Pa.. ..	CAPT G. W. Smith (MC) USN, CO
	CAPT H. G. Young (MC) USN, Exec. O
NavHosp, Bainbridge, Md.....	CAPT H. L. Goff (MC) USN, CO
	CAPT J. G. Schnebly (MC) USN, Exec. O
NavHosp, Portsmouth, Va.....	CAPT C. J. Stuart (MC) USN, CO
	CAPT G. B. Tayloe (MC) USN, Exec. O
National Naval Medical Center	
Bethesda, Md.....	RADM W. J. C. Agnew (MC) USN, CO
NavHosp, NNMC, Bethesda, Md.....	CAPT B. W. Hogan (MC) USN, CO
	CAPT C. H. McMillan (MC) USN, Exec. O
NavHosp, Annapolis, Md.....	CAPT J. R. Fulton (MC) USN, CO
	CAPT T. J. Carter (MC) USN, Exec. O
NavHosp, Quantico, Va.....	CAPT H. M. Maveety (MC) USN, CO
	CAPT M. R. Wirthlin (MC) USN, Exec. O
NavHosp, Camp Lejeune, N. C.....	CAPT C. R. Wilcox (MC) USN, CO
	CAPT C. K. Youngkin (MC) USN, Exec. O
NavHosp, Charleston, S. C.....	CAPT J. F. Hays (MC) USN, CO
	CAPT T. I. Moe (MC) USN, Exec. O
NavHosp, Beaufort, S. C.....	CAPT E. D. Hightower (MC) USN, CO
	CAPT R. F. Cantrell (MC) USN, Exec. O
NavHosp, Jacksonville, Fla.....	CAPT D. J. Wharton (MC) USN, CO
	CAPT , Exec. O
NavHosp, Key West, Fla.....	CAPT B. E. Bradley (MC) USN, CO
	CAPT T. D. Boaz (MC) USN, Exec. O
NavHosp, Pensacola, Fla.....	CAPT D. W. Lyon (MC) USN, CO
	CAPT J. W. Kimbrough (MC) USN, Exec. O
NavHosp, Memphis, Tenn.....	CAPT C. A. Young (MC) USN, CO
	CAPT H. J. Van Peenen (MC) USN, Exec. O
NavHosp, Corpus Christi, Tex.....	CAPT C. M. Dumbauld (MC) USN, CO
	CAPT J. R. Phillips (MC) USN, Exec. O
NavHosp, Great Lakes, Ill.....	CAPT T. F. Cooper (MC) USN, CO
	CAPT K. H. Vinnedge (MC) USN, Exec. O
NavHosp, San Diego, Calif.....	CAPT W. F. James (MC) USN, CO
	CAPT J. G. Wright (MC) USN, Exec. O

NavHosp, Oceanside, Calif.....	CAPT E. P. Kunkel (MC) USN, CO	
	CAPT F. L. Read (MC) USN, Exec. O	
NavHosp, Corona, Calif.....	CAPT A. B. Chesser (MC) USN, CO	
	CAPT R. S. Simpson (MC) USN, Exec. O	
NavHosp, Oakland, Calif.....	CAPT J. N. C. Gordon (MC) USN, CO	
	CAPT I. L. V. Norman (MC) USN, Exec. O	
NavHosp, Mare Island, Calif.....	CAPT H. V. A. Packard (MC) USN, CO	
	CAPT N. M. Hardisty (MC) USN, Exec. O	
NavHosp, Bremerton, Wash.....	CAPT C. G. Clegg (MC) USN, CO	
	CAPT F. P. Gilmore (MC) USN, Exec. O	
NavHosp, Guantanamo Bay.....	CAPT D. A. Zearbaugh (MC) USN, CO	
	CAPT C. W. Reeder (MC) USN, Exec. O	
NavHosp, Coco Solo.....	CAPT C. C. Yanquell (MC) USN, CO	
	CAPT R. L. Ware (MC) USN, Exec. O	
NMU, Tripler General Hospital.....	CAPT H. L. Weaver (MC) USN	
NavHosp, Guam, M. I.....	CAPT J. H. L. Heintzelman (MC) USN, CO	
	CAPT P. K. Perkins (MC) USN, Exec. O	
NavHosp, Yokosuka, Japan.....	CAPT G. E. Stahr (MC) USN, CO	
	CAPT	Exec. O
FMF PAC Force Evacuation Hosp.....	CDR S. Ede (MC) USN, CO	

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Physiological Chemistry Manual

The Physiological Chemistry Manual (Blood Chemistry, 1951 Edition) has been printed and is now ready for distribution. Medical officers, dental officers and the commands desiring copies should submit their requests to Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Maryland, indicating number of copies desired. (NMS, NNMC, Bethesda, Md.)

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List of Recent Reports Issued by Naval Medical Research Activity

Naval Medical Research Institute, NNMC, Bethesda, Maryland.

Effects of Intra-Arterial Administration of Nitrogen Mustard, Proj. NM 000 018.08.01, 10 September 1951.

Sintered Glass Disks, Proj. NM 000 018.07.10, 9 October 1951.

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From the Note Book

1. RADM Lamont Pugh (MC) USN, Surgeon General of the Navy, addressed the senior students, interns and residents of Georgetown University Medical School and Hospital (Washington, D. C.), on 6 March 1952. Admiral Pugh presented a biographical sketch of Dr. Benjamin Rush highlighting his many contributions to early America as an outstanding physician, writer and statesman of the 18th century. Dr. Rush was one of the 5 physicians who signed the Declaration of Independence. (PIO, BuMed, 5 March 1952)

2. Dr. Robert Cruickshank, internationally known medical research specialist and Professor of Bacteriology at the Wright-Fleming Institute, St. Mary's Hospital Medical School, London, England, was a recent visitor to the Navy Medical Research Unit # 4 at Great Lakes, Illinois. He was accompanied by Dr. Clayton Loosli, Professor of Preventive Medicine at the University of Chicago Medical School, who is a consultant to NMRU # 4. Dr. Cruickshank, a Fellow of the Royal Society of Medicine and the Royal College of Physicians, is noted for his many publications on the control of infectious diseases. (PIO, BuMed, 5 March 1952)

3. A medical identification committee composed of pathologists, radiologists and dentists succeeded in identifying 116 of 119 bodies burned beyond recognition resulting from a fire aboard the steamship Noronic on 17 September 1949. These results have never been equalled. The experiences and achievements of such a medical study deserve a place in the records. (J. A. M. A., 23 Feb. 1952, T. C. Brown, R. J. Delaney & W. L. Robinson)

4. The use of dental prosthetic splints in unilateral fracture of the maxilla and compound fracture of the mandible appears in Oral Surgery, Oral Medicine and Oral Pathology for February 1952. (CDR J. L. Bradley (DC) USN).

5. "Surgical Treatment of Hyperfunctioning Lesions of the Adrenal Cortex," the Lord Moynihan Lecture given at Leeds, England, on 28 October 1951 by Captain Waltman Walters, MC, USNR, can be found in The Lancet, 2 February 1952.

6. Three new drugs with four different names are being heralded as promising much in the treatment of tuberculosis. One is a pyrazine chemical related to nicotinic acid called Aldinamide. The second is isonicotinic acid hydrazide called Nydrazid and Rimifon. The third drug, called Marsilid, is the isopropyl derivative of Rimifon. All 3 chemicals can be given by mouth. Several months will have to elapse before the real value of these latest drugs can be fully determined. (Science News Letter, 1 March 1952)

7. Insect-killing floor wax gives high finish to floors of linoleum, asphalt, and rubber tile, cement and wood, and kills roaches, ants, waterbugs, silverfish and

other household insects that come in contact with it. (Science News Letter, 23 Feb. 1952)

8. A presentation of a simple but comprehensive investigation of infertility will be found in the Journal of the Arkansas Medical Society, February 1952, P. H. Woods.
9. The marriage of two complete albinos with normally pigmented offspring is reported in the British Journal of Ophthalmology, February 1952, by P. D. Trevor-Roper.
10. The February 1952 issue of the A. M. A. Archives of Industrial Hygiene and Occupational Medicine is devoted to a "Conference on Problems of Noise in Industry."
11. A thorough discussion of the "Early Management of the Severely Burned Patient" will be found in Surgery, Gynecology and Obstetrics, March 1952, E. I. Evans.
12. A discussion of the psychological problems of adjustment to cancer of the breast appears in J. A. M. A., 8 March 1952. (R. Renneker & M. Cutler)
13. Live births in the United States last year soared above 3,800,000 for the second time in history, and topped the 1950 birth total by more than 200,000. Based on registered births alone, the birth rate for 1951 thus rose to 24.5 per thousand population, an increase of 4.3 % over 1950. A fall in the infant mortality rate, which dropped for the fifteenth straight year to 28.8 per thousand live births, also helped to swell the 1951 addition to the infant population. The rate in 1940 was 47.4 and in 1930, 64.8. The over-all death rate, 9.7 per thousand population, showed virtually no change from 1950. The mortality level has now been below 10 deaths per thousand for 4 years. (PHS, FSA, National Office of Vital Statistics)
14. Chemists, engineers, nurses and physicians who are members of the American Conference of Governmental Hygienists will open their 1952 meeting on April 20, 1952, at Cincinnati, Ohio.
15. Five Navy Medical Corps officers have recently been certified in their specialties. They are: CAPT C. F. Storey, American Board of Thoracic Surgery; CDR J. W. Metcalfe, American Board of Orthopedic Surgery; CDR W. R. Miller, American Board of Orthopedic Surgery; CAPT E. S. Lowe, American Board of Surgery and LT J. H. Heald, American Board of Radiology. (PIO, BuMed, 5 March 1952)

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BUMED CIRCULAR LETTER 52-15

27 February 1952

From: Chief, Bureau of Medicine and Surgery
To: All Medical Department Activities and Facilities Ashore
Subj: Purchase Requisitions

Ref: (a) Manual of Medical Department, Chapter 24, Section V
(b) BUSANDA Manual, Volume 2
(c) BUMED Cir Ltr No. 51-100 (as modified by 51-126)
(d) BUMED Cir Ltr No. 50-53
(e) BUMED Cir Ltr No. 51-96
(f) BUMED Cir Ltr No. 51-103
(g) BUMED Cir Ltr No. 51-142
(h) BUMED Cir Ltr No. 51-145
(i) BUMED Cir Ltr No. 51-156
(j) SECNAV Ltr N4-1, 16 Nov 1948; NDB Cum. Ed 1948, 48-879, p. 108
(k) BUDOCKS Cir Ltr No. 50-4; Jan-June 1950 NDB, 50-134, p. 305

The instructions contained in this letter and in reference (c) are supplementary to the instructions and procedures set forth in cited references and may necessitate procedural changes in preparation of requisitions. Strict adherence to these instructions will be required.

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BUMED CIRCULAR LETTER 52-16

28 February 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Naval Hospitals

Subj: Remains, care of when embalming cannot be immediately accomplished

1. Occasionally complaints are received in the Bureau relative to unsatisfactory condition of remains of naval personnel upon arrival at destination. Receipt of a complaint of this nature is a source of extreme embarrassment to the Bureau particularly in those cases where it is obvious that proper refrigeration and care of the remains would have permitted viewing by the next of kin. It is therefore imperative that when death occurs aboard a ship at sea and embalming facilities are not available, or when death occurs at a naval hospital and embalming will be delayed, the remains be refrigerated at a temperature of from 34 to 40 degrees Fahrenheit in order to prevent decomposition prior to such time as embalming can be accomplished.

H. L. Pugh

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BUMED CIRCULAR LETTER 52-17

28 February 1952

From: Chief, Bureau of Medicine and Surgery
To: All activities under BUMED Management Control

Subj: Performance rating plan; improvement of

1. As a part of an Office of Industrial Relations survey, all BUMED field activities are requested to submit recommendations for improvements in the Navy Department's Performance Rating Plan (NCPI-130).
2. It is believed that the present performance rating plan has been in effect a sufficient length of time to make possible recommendations for improving the plan, based on experience in its use. There have been some indications that various naval activities and some employees are not fully satisfied with the present rating plan. Accordingly, recommendations may be made within the scope of the present statute or Civil Service Commission regulations or, if desired, recommendations may include proposals for change of statute or regulations.
3. Copies of individual field activity recommendations will be forwarded by the Bureau to the Office of Industrial Relations in support of overall Bureau recommendations for improvement of the present rating plan. Therefore, recommendations shall be submitted in duplicate to reach the Bureau not later than 30 April 1952.
4. This letter is cancelled when the requested report has been submitted.
H. L. Pugh

The above letter will not be printed in the Navy Department Bulletin.

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JOINT LETTER

BUMED CIRCULAR LETTER 52-18

28 February 1952

From: Chief of Naval Personnel
Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Formal physical examination of candidates for admission to the Naval Academy in 1952; arrangements for

Ref: (a) Joint ltr Pers-C1221-ec, M1; BuMed-332-GWH, P2-5/NC2, C. L.
51-28 of 14 Feb 1951, No. 51-115 Navy Department Bulletin of
15 Feb 1951
(b) Art 15-43, Man Med Dept, ADV CH 1-5

- (c) Art 15-43(1)(d), Man Med Dept, ADV CH 1-5
- (d) Art 15-43(4)(a), Man Med Dept, ADV CH 1-5
- (e) Art 15-43(3)(b)(1), Man Med Dept, ADV CH 1-5
- (f) Art 15-43(5)(b)(2), Man Med Dept, ADV CH 1-5
- (g) Art 15-43(5)(b)(3), Man Med Dept, ADV CH 1-5
- (h) Art 15-43(6)(b)(2), Man Med Dept, ADV CH 1-5
- (i) Art 15-43(5)(a)(5), Man Med Dept, ADV CH 1-5

1. Reference (a) is hereby cancelled and is superseded by the following instructions. In executing these instructions, strict compliance with the provisions of references (c) through (i), including the modification of reference (f) as made herein, is directed.

2. Final physical examination of civilian candidates for admission to the U. S. Naval Academy shall be performed by boards of medical examiners in May of each year and at such other times as may be necessary, at the following activities:

- U. S. Naval Hospital, Chelsea, Mass.
- U. S. Naval Hospital, St. Albans, Long Island, N. Y.
- U. S. Naval Hospital, Philadelphia, Pa.
- Permanent Board of Medical Examiners, U. S. Naval Academy, Annapolis, Md.
- U. S. Naval Hospital, Portsmouth, Va.
- U. S. Naval Hospital, Charleston, S. C.
- U. S. Naval Hospital, Memphis, Tenn.
- U. S. Naval Hospital, Pensacola, Fla.
- U. S. Naval Hospital, Key West, Fla.
- U. S. Naval Hospital, Jacksonville, Fla.
- U. S. Naval Hospital, Corpus Christi, Tex.
- U. S. Naval Air Station, Dallas, Tex.
- U. S. Naval Hospital, Great Lakes, Ill.
- U. S. Naval Air Station, Olathe, Kan.
- U. S. Naval Air Station, Denver, Colo.
- U. S. Naval Hospital, San Diego, Calif.
- U. S. Naval Hospital, Oakland, Calif.
- U. S. Naval Hospital, Bremerton, Wash.
- Naval Unit, Tripler General Hospital, Honolulu, T. H.
- U. S. Naval Hospital, Coco Solo, C. Z.

3. The U. S. Naval Hospital, Bainbridge, Maryland, shall provide similar service to the enlisted candidates at the U. S. Naval Preparatory School, U. S. Naval Training Center, Bainbridge, Maryland, upon completion of the scholastic entrance examinations.

4. Additional Medical Corps and/or Dental Corps personnel will be furnished on temporary additional duty basis, at the appointed time, to the U. S. Naval Air Station, Olathe, Kansas, from the U. S. Naval Hospital, Memphis, Tennessee; to the U. S. Naval Air Station, Dallas, Texas, from the U. S. Naval Hospital, Corpus Christi, Texas, and to the U. S. Naval Air Station, Denver, Colorado, from the U. S. Naval Hospital, Oakland, California.
5. Prior to the examination period, the Chief of the Bureau of Medicine and Surgery shall determine the number and qualifications of medical or dental officers needed to reinforce the staffs of the U. S. Naval Air Stations at Olathe, Kansas; at Denver, Colorado, and at Dallas, Texas, and will arrange for their assignment during the time their services will be required.
6. The Superintendent, U. S. Naval Academy, will provide the Bureau of Naval Personnel (Naval Academy Branch) and the Bureau of Medicine and Surgery a schedule of dates for convening boards of medical examiners at the various examining centers.
7. The Bureau of Naval Personnel (Naval Academy Branch) will inform each of the examining centers of the dates on which final physical examinations for admission to the U. S. Naval Academy will be held. In an effort to limit the number of candidates appearing for the formal physical examination, the permits issued individual candidates to undertake this examination will be qualified in such a way as to eliminate those who fail to pass the March scholastic examination. To accomplish this limitation it is anticipated that the reports of the March scholastic examinations will be furnished the Bureau of Naval Personnel on or about 21 April 1952. The Bureau will thereupon notify all candidates who have failed in the scholastic examinations that it is unnecessary that they report for the formal physical examination. Because of this arrangement it will be impracticable to supply the examining centers an exact list of candidates who may appear for the formal physical examination on the prescribed dates during the period thereof. Each examining center will, however, be furnished by the Bureau of Naval Personnel (Naval Academy Branch) a copy of the physical examination permit as and when issued each duly nominated candidate. These will be issued in such manner as to authorize not more than fifty (50) candidates a day during the examining period. Notifications of failure in the scholastic examinations sent to the candidates concerned will result in substantial reduction of the number actually reporting for the physical examination. The provisions of this paragraph are not applicable in the case of the Permanent Medical Examining Board at the U. S. Naval Academy or of the U. S. Naval Hospital, Bainbridge, Maryland, because the physical examination at these two points will be held before the scholastic examination results become available.
8. In order to reduce the quantity of paper work on the part of the Permanent Medical Examining Board at the Naval Academy and to insure earlier availability of physical examination results, the reporting procedure in reference (f)

shall be observed, except that Standard Form 88 shall be prepared in quadruplicate and one copy furnished to the Bureau of Naval Personnel (Attention: Naval Academy Branch) and another to the Superintendent of the U. S. Naval Academy, Annapolis, in addition to the transmittal required by reference (f). PROMPT TRANSMISSION AND ACCURATE DISPOSITION OF ALL REPORTS IS HIGHLY ESSENTIAL TO ASSURE IMMEDIATE AND ACCURATE INFORMATION AS TO ELIGIBILITY FOR ADMISSION INSOFAR AS PHYSICAL QUALIFICATIONS ENTER INTO THAT DETERMINATION.

9. The candidate shall be informed, by the Senior Member, Board of Medical Examiners, of the result of the final physical examination for admission, and the decision of the Board shall be final when resulting in the acceptance of the candidate. Rejection of a candidate completes all action in his case, insofar as the Board is concerned. However, a rejected candidate shall be informed by the Senior Member, Board of Medical Examiners, that he may request a re-examination by the Board of Medical Review at the U. S. Naval Academy under the conditions outlined in paragraph 10. It should be emphasized that responsibility for initiating such a request shall rest with the rejected candidate and all requests for physical re-examinations shall be submitted in writing prior to 1 June to the Bureau of Naval Personnel, Navy Department, Washington 25, D. C., marked "Attention, Naval Academy Branch." The Bureau of Naval Personnel will notify rejected candidates who request re-examination of the time and date upon which they should appear at the U. S. Naval Academy for that purpose.

10. Rejected candidates appearing at the U. S. Naval Academy for re-examination and final disposition as to their physical qualifications shall do so at their own expense. The primary purpose of the provision for a re-examination at the U. S. Naval Academy is to afford candidates with remediable defects which caused their rejection an opportunity to have such defects corrected and for re-examination thereafter. Such opportunity for further examination does not imply ultimate acceptance. Candidates with other than remediable defects may also be re-examined, at their own expense, by the Board of Medical Review at the U. S. Naval Academy. In all instances of re-examination, the decision of the Board of Medical Review shall be final.

11. Each candidate shall execute a sworn statement as required by reference (i).

12. Nothing in this letter alters or cancels any provision of reference (b) pertaining to preliminary physical examination of candidates for appointment to the U. S. Naval Academy.

H. L. Pugh

L. T. Dubose

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BUMED CIRCULAR LETTER 52-19

4 March 1952

From: Chief, Bureau of Medicine and Surgery
To: COs, National Naval Medical Center and all naval hospitals

Subj: Navy Savings Bond Program; promotion of

Ref: (a) SecNav ltr 52-18 (NDB 15 January 1952)

1. Average participation in the Payroll Savings Plan by civilian employees of naval hospitals is 41.3 percent. This is in contrast to 71.9 percent average participation throughout the Naval Establishment. Average participation in naval shipyards is 94.5 percent. The rate of participation in naval hospitals is the lowest of all Navy and Marine Corps activities. This is a matter of serious concern to the Chief of the Bureau of Medicine and Surgery.

2. It is recognized that unusual difficulties will be encountered at most naval hospitals in attaining and maintaining the 65 percent participation objective in the Navy's Payroll Savings Plan due to the low pay rates of the relatively large numbers of civilians employed in the food services and laundries. Nevertheless, it is desired that addressees take such steps as are necessary to insure that special attention is given to explaining the advantages of the Payroll Savings Plan to all employees.

3. New employees in particular should be encouraged to enroll for at least the minimum amount of payroll savings at the time of their employment. This participation can be best accomplished by an effective presentation of the Payroll Savings Plan during the employee's induction interview.

C. J. Brown
Acting

The above letter will not be published in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 52-20

4 March 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Physical qualification certification by the Civil Aeronautics Administration of U. S. Naval and Marine Corps Personnel

Ref: (a) Civil Aeronautics Act of 1936
(b) Civil Air Regulations Amendment 20-2 of 12 Aug 44
(c) Chief, Medical Division, Civil Aeronautics Administration ltr of 22 Oct 51

(d) Chief, Medical Division, Civil Aeronautics Administration ltr of 1
Aug 51

(e) BUMED Circular Letter No. 51-159

1. Reference (a) establishes requirements for airmen to be found physically qualified before serving in any capacity as an airman.
2. Reference (b) permitted U. S. Navy and Air Force flight surgeons to issue a Flight Surgeon's Certificate to pilots in a solo-flight status in an active-duty status with the Armed Services. This certificate was in lieu of a Civil Aeronautics Administration Second Class Airman's Medical Certificate issued following the successful completion of the periodic physical examination required by reference (a).
3. Reference (c) revokes the privilege extended in reference (b) of U. S. Navy flight surgeons to issue the Flight Surgeon's Certificate to active duty Armed Services personnel in solo-flight status. Reference (c) agrees, however, to issue a Civil Aeronautics Administration Second Class Airman's Medical Certificate to physically qualified Armed Services personnel on active duty currently in solo-flight status upon the receipt of a completed and approved copy of the Standard Form 88.
4. Reference (d) advises the Chief of the Bureau of Medicine and Surgery that the Medical Director of the Civil Aeronautics Administration will issue a Civil Aeronautics Administration Second Class Airman's Medical Certificate to U. S. Navy and Marine Corps personnel applying for, or serving in, the ratings of U. S. Navy air controlman (AC) and U. S. Marine Corps aviation control tower operator, MOS 6711, and aviation controlman, MOS 6719, who have been found physically qualified by a U. S. Navy flight surgeon or aviation medical examiner in accordance with requirements set forth in reference (e).
5. Information and instructions for requesting a Civil Aeronautics Administration Second Class Airman's Medical Certificate are as follows:
 - a. The applicant must appear before a qualified flight surgeon or aviation medical examiner on active duty with the Armed Services for an aviation physical examination.
 - b. The applicant must satisfy the physical requirements of a class I, Service Groups I or II pilot, or those of reference (c), whichever is applicable.
 - c. The completed and properly executed original and two copies of the Standard Form 88 of the applicant shall be submitted to the Bureau of Medicine and Surgery for approval and record purposes.

(1) Each Standard Form 88 shall have AVIATION printed in the upper right-hand corner.

(2) In the space designated for PURPOSE OF EXAMINATION the words "CAA CERTIFICATION" shall be utilized. Standard Form 88's completed for promotional purposes, annual physical examinations, post-hospitalization physical examinations, etc., may also be used for Civil Aeronautics Administration certification, in which case both purposes of examination shall be recorded in the designated space. Under such conditions it is again required that the original and two copies of the Standard Form 88 be forwarded to the Bureau of Medicine and Surgery.

6. Upon receipt of the properly executed original and two copies of the Standard Form 88, the Physical Qualifications Branch, Aviation Medicine Division of the Bureau will so mark the forms as to indicate whether or not the applicant is found physically qualified, and will then forward to the Chief of the Medical Division, Civil Aeronautics Administration, one copy for action and retention.

7. Upon the receipt of an approved copy of the Standard Form 88 of a physically qualified applicant, the Chief of the Medical Division, Civil Aeronautics Administration, will forward to the applicant a valid Civil Aeronautics Administration Second Class Airman's Medical Certificate.

H. L. Pugh

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BUMED CIRCULAR LETTER 52-21

5 March 1952

From: Chief, Bureau of Medicine and Surgery
To: Distribution List

Subj: Hospital organization charts and personnel listings

Ref: (a) BUMED Cir Ltr No. 51-22

1. To date the Bureau has not received the annual submission required by reference (a). If charts submitted last year are still current, paragraph 3d of reference (a) is applicable.

2. Your attention is invited to the provisions of paragraph 4 of reference (a). Its provisions were misinterpreted in a number of instances last year.

3. Compliance shall be effected at the earliest practicable date.

4. This letter is cancelled after the required submission has been made.

H. L. Pugh

Circular Letter 52-21 will not be printed in the Navy Department Bulletin.

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Permit No. 1048
NavMed-369 - 3/52

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BUREAU OF MEDICINE AND SURGERY

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